

Claim 18 (original): A process according to claim 14 wherein, the concentration of isomerized hop acid or derivative thereof in the yeast and fermentor streams ranges from substantially about 1 to substantially about 20 ppm.

Claim 19 (original): A process according to claim 14 wherein, the concentration of isomerized hop acid or derivative thereof in the yeast and fermentor streams ranges from substantially about 2 to substantially about 4 ppm.

## **REMARKS/ARGUMENTS**

Claims 1 - 19 were originally pending in this application. Claim 1 is canceled and claims 2-5 and 8-12 were amended.

### **112, Paragraph 2 Rejection**

The examiner rejected claims 3, 4, 8, 18 and 19 under 35 U.S.C. 112, second paragraph as being indefinite because the scope of the term “about” is indefinite. Applicant has amended the claims to address this rejection.

### **102(b) Rejection**

The examiner has rejected claims 1-10, and 12 under 35 U.S.C. 102(b) as being anticipated by Haas Isohop ([www.gne22.kial.pipex.com/isohop.html](http://www.gne22.kial.pipex.com/isohop.html)).

Claim 2 has been amended to incorporate the limitations of claim 1 and to reflect the addition of hop acids, pre-fermentation. The examiner will appreciate that the Haas Inc. product, Isohop, is added post-fermentation to flavor beer. For this reason, it is respectfully submitted that claim 2 is not anticipated under 102(b). Moreover, as defined in claim 2, the aqueous alkaline hop acid solution must be at a higher pH than the process medium, whether that process

medium is beer, milk, or some other substance. The Haas Isohop reference does not disclose this feature.

Similarly, dependent claim 12 is not anticipated by the Haas Isohop reference because the reference fails to disclose all of the steps set forth in claim 12. For example, claim 12 sets forth the step of heating an aqueous medium. The Haas Isohop reference does not disclose any heating step. Claim 12 also sets forth the step of adding an alkaline medium to obtain a pre-defined pH. The Haas Isohop reference does not disclose anything regarding a particular pH range. Claim 12 sets forth the step of keeping the mixture within a raised temperature range and within a pre-defined time period. The Haas Isohop reference does not disclose a raised temperature range for the mixture and does not indicate a time period for a raised temperature. Claim 12 further calls for a step for separating the solution of hop acid from the mixture. The Haas Isohop reference does not disclose a separation step. Lastly, claim 12 sets forth a step for cooling the solution of hop acid to a temperature below about 20° C. The Haas Isohop reference does not disclose a cooling step. For these reasons, applicant respectfully submits that claim 12 is not anticipated by the Haas Isohop reference, nor should claim 12 be rejected on obviousness grounds because the steps outlined above would not be present in any combination of the prior art of record.

With respect to the examiner's rejection of claim 3 in view of the Haas Isohop reference, applicant has amended the claim to specify a hop acid concentration from substantially 2 to substantially 19 wt. % of hop acid. This is supported by the specification at page 6, lines 7-14. The Haas Isohop reference does not disclose this range.

With respect to claim 4, the Haas Isohop reference does not disclose a pH range from substantially 7.5 to substantially 13.0. In fact, the Haas Isohop reference does not disclose any pH range.

Claim 8 has been amended to claim an alkaline medium that is comprised of sodium hydroxides and mixtures of sodium hydroxide and potassium hydroxide. The Haas Isohop reference neither discloses sodium hydroxide as part of the alkaline mixture nor the mixture of sodium hydroxide and potassium hydroxide as part of the alkaline mixture. Therefore applicant respectfully submits that claim 8 is not anticipated by the Haas Isohop reference.

Claim 9 calls for a temperature range for the process medium. The Haas Isohop reference does not disclose a temperature range for the process medium. Therefore applicant respectfully submits that claim 9 is not anticipated by the Haas Isohop reference.

Applicant has amended claim 10 to call for concentrations of hop acid within the process medium in the range of 0.1 – 3.5 ppm. The Haas Isohop reference claims hop acid concentrations of 3.75 ppm and 10 ppm.

### **103(a) Rejection**

The examiner rejected claims 11, 13, and 14-19 under 35 U.S.C. 103(a) as being unpatentable over applicant's admissions in view of Haas. Applicant submits that the subject matter of these claims is not obvious over the combination of references and admissions because a person skilled in the art would not have the proper motivation for making these combinations, as required by MPEP 2142-2144. Separately, the examiner did not establish the existence of all of the claimed elements in the prior art.

The Haas Isohop reference discloses a product that is added to beer for flavoring. Though whole hops or hop pellets have been used to control bacteria problems in distilleries, applicant's

invention is a process that allows the hop acids to pass from a salt form to an anti-bacterial effective free acid form. This process is not obvious from the combination of the Isohop product and knowledge that hops can be used to control bacteria problems. For these reasons, it is submitted that the above claims should not have been rejected under 103(a).

Claim 13 is independently allowable because it calls for cooling the solution of hop acids to a temperature below 10° C. Neither applicant's admissions nor the Haas Isohop reference disclose this element, either separately or in combination with one another. Therefore applicant respectfully submits that claim 13 is not obvious in view of the Haas Isohop reference and applicant's admissions.

Applicant amended claim 14 to include a distinctive sequence for adding an effective antibacterial amount of an isoalpha acid or derivative thereof. Claim 14 now provides that the isoalpha acid is added prior to entering the yeast growing tank and the fermentor tank. Therefore applicant respectfully submits that claim 14 is not obvious in view of the Haas Isohop reference and applicant's admissions.

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

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